

Translation

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PATENT COOPERATION TREATY

PCT/EP2003/012105



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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT1957-00983/jk	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/012105	International filing date (day/month/year) 30 October 2003 (30.10.2003)	Priority date (day/month/year) 31 October 2002 (31.10.2002)
International Patent Classification (IPC) or national classification and IPC A01N 4900		
Applicant BENCSITS, Franz		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 8 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 25 May 2004 (25.05.2004)	Date of completion of this report 02 February 2005 (02.02.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/012105

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages _____ 1-30 _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages _____ 1-30 _____, filed with the letter of _____ 13 January 2005 (13.01.2005)
- ☒ the drawings:
 pages _____ 43-52, 1-63 _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

- These elements were available or furnished to this Authority in the following language _____ which is:
- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

...5...

The amendments submitted with the letter of 13 January 2005 introduce substantive matter which, contrary to PCT Article 34(2)(b), goes beyond the disclosure in the international application as filed. Whereas claim 10 of the present application as originally filed indicates only the formula for stereochemically non-specified acetalised citronellal, the corresponding new claim 4 contains the formula for acetalised S-(-)-citronellal. Since this formula claims **any S-(-)-citronellal-C-10-terpenyl(hemi)acetal**, the subject matter of the claim also covers compounds for which no basis can be found in the international application as filed.

In addition, this amendment also renders the subject matter of the new claim 5 unclear. Claim 5 is dependent on claim 4, yet describes acetalised R-(+)-citronellal and therefore cannot refer to the acetalised S-(-)-citronellal in claim 4.

This examination report was drafted without taking the above amendment into consideration (PCT Rule 70.2(c)).

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	3, 6-27, 29	YES
	Claims	1, 2, 4, 5, 28, 30	NO
Inventive step (IS)	Claims	6-25	YES
	Claims	1-5, 26-30	NO
Industrial applicability (IA)	Claims	1-30	YES
	Claims		NO

2. Citations and explanations

Reference is made to the following documents:

- D1: WO 00 19822 A (BEHAN JOHN MARTIN ;BIRCH RICHARD ARTHUR (GB); QUEST INT (NL)) 13 April 2000 (2000-04-13)
- D2: DATABASE WPI Section Ch, Week 199526 Derwent Publications Ltd., London, GB; Class C03, AN 1995-196675 XP002270072 & JP 07 112907 A (ST KAGAKU KK), 2 May 1995 (1995-05-02)
- D3: DATABASE WPI Section Ch, Week 199824 Derwent Publications Ltd., London, GB; Class A92, AN 1998-266958 XP002270073 & JP 10 087407 A (ST KAGAKU KK), 7 April 1998 (1998-04-07)
- D4: US-A-6 087 402 (FONSNY PIERRE ET AL) 11 July 2000 (2000-07-11)
- D5: F.GUALTIERI ET AL.: 'Topical Mosquito Repellents IV: Alicyclic, Bicyclic, and Unsaturated Acetals, Aminoacetals, Aminoacetals, and Carboxamide Acetals' JOURNAL OF PHARMACEUTICAL SCIENCES., Vol. 61, No. 1, January 1972 (1972-01), pages 577-580, XP002270068 AMERICAN PHARMACEUTICAL ASSOCIATION. WASHINGTON., US ISSN: 0022-3549
- D6: DATABASE WPI Section Ch, Week 199011 Derwent

Publications Ltd., London, GB; Class A97,
AN 1990-079194 XP002270074 & JP 02 032035 A
(NIPPON OILS & FATS CO LTD), 1 February 1990
(1990-02-01) -& JP 02 032035 A 1 February 1990
(1990-02-01)

- D7: DATABASE CA [Online] CHEMICAL ABSTRACTS
SERVICE, COLUMBUS, OHIO, US; retrieved from
STN-INTERNATIONAL Database accession no.
135:166938 XP002270070 & BR 9 805 367 A
(UNIVERSIDADE FEDERAL DE UBERLANDIA) 6 June
2000 (2000-06-06)
- D8: WO 92 02136 A (R & C PRODUCTS PTY LTD)
20 February 1992 (1992-02-20)
- D9: GB-A-2 140 421 (NAT RES DEV) 28 November 1984
(1984-11-28)
- D10: US 2002/068075 A1 (TANAKA SHIGEYOSHI ET AL) 6
June 2002 (2002-06-06)
- D11: WO 97 34986 A (PAN ROBERT YA LIN; MAO HSIANG
KUEN (JP); MORELLI JOSEPH PAUL (US);)
25 September 1997 (1997-09-25)
- D12: US-A-4 832 059 (GARRARD VICTOR G ET AL) 23 May
1989 (1989-05-23)
- D13: W.G.TAYLOR ET AL.: 'Diastereomers of the insect
repellent 3-acetyl-2-(2',6'-dimethyl-5'-
heptenyl)oxa zolidine.' CANADIAN JOURNAL OF
CHEMISTRY., Vol. 62, 1984, pages 96-100,
XP002270069 NATIONAL RESEARCH COUNCIL. OTTAWA.,
CA ISSN: 0008-4042
- D14: DATABASE CA [Online] CHEMICAL ABSTRACTS
SERVICE, COLUMBUS, OHIO, US; Y.MATSUBARA ET
AL.: 'Synthesis of new acetals and their
derivatives from terpene aldehyde and alcohol'
retrieved from STN- INTERNATIONAL Database
accession no. 73:109911 XP002270071 & YUKI
GOSEI KAGAKU KYOKAISHA, Vol. 28, No. 8, 1970,

pages 849-852

V.a. Novelty:

The subject matter of claims 1, 2, 4, 5, 28 and 30 lacks novelty (PCT Article 33(2)):

Document D7 describes the production of citronellal-p-menthane-3,8-diol-acetal (an acetal of the acyclic C10-terpene citronellal with the cyclic C10-terpene p-menthane-3,8-diol) and refers to the insect repellent effect thereof. Since the wording of claims 1 to 5 does not exclude cyclic terpene groups (C10) as acetal- or hemiacetal groups, the subject matter of claims 1, 2, 4 and 5 lacks novelty over D7 (PCT Article 33(2)).

Document D8 describes insect-repellent, synergistic mixtures of citronellal-p-menthane-3,8-diol-acetals with p-menthane-3,8-diol (see D8: page 1, paragraph 1; page 4, line 8 to page 5, line 25). Since the wording of claims 1 to 5 does not exclude cyclic terpene groups (C10) as acetal- or hemiacetal groups, the subject matter of claims 1, 2, 4, 5, 28 and 30 lacks novelty over D8 (PCT Article 33(2)).

Document D1 describes the use of citral diethyl acetal as an insect repellent for combating, *inter alia*, mosquitoes and cockroaches; the insect repellent may also contain in addition to the active ingredient further insect-repelling fragrances (see D1: page 2, lines 20 to 25; page 3, lines 2 to 7; page 4, line 30 to page 6, line 21; the example).

Document D2 describes the use of citral diethyl

acetal as an insect repellent for combating moths, *inter alia*.

Document D3 describes the use of citral diethyl acetal in combination with other insect-repelling agents or insecticides as a means for protecting against moths.

Document D4 describes the use of citral dimethyl acetal as an acaricidal agent (see D4: column 5, line 10).

Document D5 describes tests relating to the insect-repelling effect of citral-5-norbornene-2-methanolacetal and mentions the low degree of topical toxicity of certain acetals (see D5, compound XV).

Document D6 describes the use of citronellal-1,3-dioxol derivatives as an insecticide and insect repellent. Document D6 is a summary of a Japanese document. Said document mentions on page 242 the compound citronellal-1,2-glyceryl acetal. Document D6 also refers to the long-lasting effect of the active substance, caused by gradual hydrolysis.

Document D9 describes acetals of citronellal with benzyl alcohols or phenyl-substituted ethylene glycols.

Documents D10 to D14 describe a number of citral or citronellal acetals with different (including terpenoid) alcohols, diols and polyols, without any possible use as an insect repellent being mentioned.

None of documents D1 to D6 or D9 to D14 describes the use as insect repellent of acetals or hemiacetals of an acyclic terpene (C10), with the acetal or hemiacetal groups themselves representing a terpene group (C10).

The prior art does not describe the use as insect repellent of a (hemi)acetal of an acyclic C10 terpene with an unsaturated C10 terpene (hemi)acetal group (see claim 3) or the use as insect repellent of the (hemi)acetals 5a to 24b, which each consists of an acyclic C10 terpene with an acyclic C10 terpene (hemi)acetal group (see claims 6 to 25). Nor does the prior art describe the use of mixtures of (hemi)acetals, as described in claims 1 to 25, with the additives in claims 26, 27 and 29. The subject matter of claims 3, 6 to 27 and 29 is thus novel (PCT Article 33(2)).

V.b. Inventive step

Since the subject matter of claims 1, 2, 4, 5, 28 and 30 lacks novelty, it cannot involve an inventive step (PCT Article 33(3)).

The subjects of claims 3, 26, 27 and 29, which relate to the use of derivatives with unsaturated (hemi)acetal groups or of mixtures using combination partners not described in D8, concern merely alternative variations to the prior art from which a person skilled in the art would choose according to the circumstances in order to solve the problem of interest, without thereby being inventive.

Documents D7 and D8 describe the use of citronellal-

p-menthane-3,8-diol-acetal (an acetal of the **acyclic** C10 terpene citronellal with the **cyclic** C10 terpene p-menthane-3,8-diol) alone or in mixtures for repelling insects. The subject matter of claims 6 to 25 differs from this prior art in that (hemi)acetals of an **acyclic** C10 terpene are used with **acyclic** C10 terpenes as a (hemi)acetal group for repelling insects. Since the prior art neither describes nor suggests the use of such (hemi)acetal compounds as insect repellent, the subject matter of claims 6 to 25 involves an inventive step (PCT Article 33(3)).

5.c. Industrial applicability

The subject matter of claims 1 to 30 appears to be industrially applicable (PCT Article 33(4)).